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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,903	05/02/2002	Takahiko Kawasaki	I-184	9865
802	7590	03/16/2004	EXAMINER	
DELLETT AND WALTERS 310 S.W. FOURTH AVENUE SUITE 1101 PORTLAND, OR 97204			TRAN, LY T	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 03/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/030,903	<b>Applicant(s)</b> KAWASAKI ET AL.	
	<b>Examiner</b> Ly T TRAN	<b>Art Unit</b> 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 07 December 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 3,13-16 and 409 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3-9 and 16 is/are allowed.
- 6) ☒ Claim(s) 13-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koitabashi et al. (USPN 6,325,492) in view of Kaneko (USPN 6,033,051) and Hosono (6,488,354).

With respect to claim 13, Koitabashi discloses an ink jet apparatus having first ejection elements formed respectively near each of the nozzles for ejecting the ink from the nozzle and forming an image by driving the first ink ejection element to eject the ink (Fig.4: element SH2, Column 12: line 16-17), second ink ejection elements formed respectively upstream against the ink ejection direction before the first ink ejection element for ejecting the ink from the nozzle (Fig.4: element SH1), a controller is provided which drives the first ink ejection elements at a prescribed first timing and drives the second ink ejection element at a second timing later than the first timing (Column 13: line 8-20) and driving the second heat element to perform the recovery.

However, Koitabashi fails to teach the counter for counting the number of times of driving of the first ink ejection element and controller drives the second ink ejection

elements when the count of the counter reaches a prescribed number of times and detecting the temperature of the head and changing the number of times of driving of the ink ejection element accordance with the temperature.

Kaneko teaches counting a number of ink ejection data and operating the recovering based on counting (Column 7: line 46-60).

Hosono teaches a temperature sensor to detect the temperature of the head and change the number of times of driving the ink ejection element accordance with the temperature detected by the temperature sensor (Column 18: line 58-56, Column 19: line 22-40, table 3).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teaching of Koitabashi to counting a number of ink ejection data and operating the recovering based on counting as taught by Kaneko. The motivation of doing so is to minimize an amount of waste ink and minimize possibility of damaging of a print head by restricting number of times to perform the recovery operation to the possible minimum number

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teaching of Koitabashi to have a temperature sensor to detect the temperature of the head and change the number of times of driving the ink ejection element accordance with the temperature detected by the temperature sensor as taught by Hosono. The motivation of doing so is the flushing operation can be performed suitable for a state of the viscosity of the ink therefore it can be more surely prevented that the nozzle is clogged with the ink.

2. Claims 14 and 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koitabashi et al (USPN 6,325,492) in view of Ishinaga et al. (USPN 6,199,972).

With respect to claim 15, Koitabashi et al discloses an ink jet apparatus having plural ink ejection elements formed respectively near each of the nozzles for ejecting the ink from the nozzle (Fig.4: element SH2, SH1) forming an image by driving any of the ink ejection element to eject the ink (Column 12: line 14-17) wherein the ink jet apparatus comprising a controller which drives, on prescribed ejection recovery, two of the ejection elements simultaneously to eject the ink through the nozzles for ink ejection recovery (Column 12: line 27-30, Line 52-55).

With respect to claim 14, Koitabashi et al discloses ink ejection element is a heater element which generates heat (Fig.4: element SH1, SH2)

Koitabashi fails to teach changing timing of ink ejection in correspondence with the shape of the ink liquid face at the outlet of the nozzle.

Ishinaga et al teach changing timing of ink ejection in correspondence with the shape of the ink liquid face at the outlet/meniscus of the nozzle (Column 7: line 20-44).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teaching of Koitabashi et al to change the timing of ink ejection in correspondence with the shape of the ink liquid face at the outlet/meniscus of the nozzle as taught by Ishinaga et al. The motivation of doing so is to adjust the amount of ink discharged.

***Allowable Subject Matter***

3. Claims 3, 4-9 and 16 are allowed.

The primary reason for the allowance of claim 3 is the inclusion of the limitation of an ink jet print head comprising a controller function to change timing of ink ejection of the ink ejection element in correspondence with the shape of the ink liquid face at the outlet of the nozzle wherein the ink ejection element is operated at a time of a maximum outwardly extension of the ink liquid face for providing a greater volume of ink ejection for recovery. It is limitation found in the claim, that has not been found, taught, or suggested by the prior art of record which makes these claims allowable over the prior art.

***Response to Arguments***

4. Applicant's arguments filed 12/7/03 have been fully considered but they are not persuasive.

Applicant's argument that Honoso does not qualify as prior art because of the filing date but did not provide the English translation therefore Honoso still can be use as prior art.

Applicant's argument that Ishinaga teaches opposite from what applicant's claimed invention doing, wherein it is desired to time the discharge activation with the maximum extension of the ink face outwardly to obtain a maximum discharge volume of ink for recovery purpose is not persuasive because these limitation was not in the claim.

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Uehara (JP402011331A) discloses changing the size of the ink droplet by controlling the timing (Abstract).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ly T TRAN whose telephone number is 571-272-2155. The examiner can normally be reached on M-F (7:30am-5pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

lt

March 3, 2004



**Stephen D. Meier**  
Primary Examiner